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January 13, 2000

VIA HAND DELIVERY

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
Portals II, Filing Counter, TW-A325
445 12th Street, S.W.
Washington, D.C. 20554

Re: Comments to WT Docket No. 96-198 Further Notice of Inquiry

Dear Ms. Salas

Submitted herewith on behalf of the American Foundation for the Blind are an original and four copies of its comments in response to the Further Notice of Inquiry in WT Docket No. 96-198.

Please contact undersigned counsel should you have any questions regarding this matter.

Very truly yours

Joseph M. Di Scipio

Enclosures (5)

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ORIGINAL

Before the
Federal Communications Commission
Washington, D.C.

In the Matter of	)	
Implementation of Section 255 and 251(a)(2) of the	)	
Communications Act of 1934, as Enacted by the	)	
Telecommunications Act of 1996;	)	
Access to Telecommunications Service,	)	WT Docket No. 96-198
Telecommunications Equipment and	)	
Customer Premises Equipment	)	
by Persons with Disabilities	)	

COMMENTS OF THE AMERCIAN FOUNDATION FOR THE BLIND ON FURTHER NOTICE OF INQUIRY

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Summary

The American Foundation for the Blind (AFB) is a leading national resource for people who are blind or visually impaired, the organizations that serve them, and the general public. The mission of the American Foundation for the Blind is to enable people who are blind or visually impaired to achieve equality of access and opportunity that will ensure freedom of choice in their lives.

AFB focuses its comments on the importance and legal requirement of ensuring access to computer-based communications equipment and software for people who are blind or visually impaired. The Commission should use this *Further Notice of Inquiry* as an opportunity to rethink its categorization of various communications services and to reach the conclusion that many of the services previously classified as "enhanced" or "information" services are functionally "telecommunications" services and that the equipment that enables those service fits squarely within the definition of customer premises equipment ("CPE"). There are at least four alternative legal and policy bases for this conclusion:

A. The *Graphnet* precedent. In *Graphnet*, the Commission considered whether a proposed service called Electronic Computer Originated Mail ("ECOM") was subject to regulation under Title II. The Commission held that "It is undisputed that ECOM is designed to offer consumers a service whereby information can be transmitted from a point of origination to one or more points of termination by means of electronic communications facilities. We therefore conclude that ECOM will be a communications service, pursuant to the statutory definition in Sections 3(a) and 3(b) of the Act."

The Commission went on to say that "Not only is the proposed service 'communications by wire or radio' it is also a common carrier activity...of a for-profit service which affords the public an opportunity to transmit messages of its own design and choosing." The *Graphnet* decision, therefore, gives the Commission precedent it needs to determine that email-type services are subject to Section 255 protections.

B. Expand the definition of CPE. By parsing the definition of CPE, it becomes clear how email, along with other text-based Internet services, is CPE. In order to be CPE, the software must first "originate" – when email is drafted on a computer or other similar device, the user has originated a message. That user then generally uses a modem to place a telephone call or dial into the telephone network where that electronic message is routed to the service provider. The service provider acts as a mere switch and routes that electronic message to the intended recipient's computer where the communication terminates. Thus, the equipment used to send electronic messages is CPE, and subject to Section 255.

C. Apply ancillary jurisdiction. Even if the Commission were to reject the above argument, the Commission clearly may and, in AFB's view, must use the *Further Notice of Inquiry* to extend Section 255 protections to these services through the use of ancillary jurisdiction.

D. Apply the Principles of the Rules and Policies on Hearing-Impaired to Access for Visually-Impaired. The Commission's policies on access to voice communications for the hearing-impaired provide a model for access to text-based communications for the visually-impaired. AFB believes that in order for Internet and computer-based communications systems to be accessible to people who are blind or visually impaired, equipment manufacturers must make provisions for audio output of all information. This is so, not only for email and other text-based services, but also for the software that allows access those services.

Before the
Federal Communications Commission
Washington, D.C.

In the Matter of	)	
Implementation of Section 255 and 251(a)(2) of the	)	
Communications Act of 1934, as Enacted by the	)	
Telecommunications Act of 1996;	)	
Access to Telecommunications Service,	)	WT Docket No. 96-198
Telecommunications Equipment and	)	
Customer Premises Equipment	)	
by Persons with Disabilities	)	

COMMENTS OF THE AMERCIAN FOUNDATION FOR THE BLIND ON FURTHER NOTICE OF INQUIRY

1. The American Foundation for the Blind (AFB) is a leading national resource for people who are blind or visually impaired, the organizations that serve them, and the general public. The mission of the American Foundation for the Blind is to enable people who are blind or visually impaired to achieve equality of access and opportunity that will ensure freedom of choice in their lives.

2. AFB has filed comments at every opportunity in the Section 255 proceedings and appreciates this further opportunity to magnify the importance of ensuring that people who are blind or visually impaired have full access to today's Internet and computer-based communications systems as well as tomorrow's innovations. AFB realizes that the Commission has specifically requested comments on Internet telephony in the instant inquiry. The access issues for people who are blind or visually impaired are related to Internet telephony are also present in other classes of computer-based communications technology. Thus, AFB focuses its comments on the importance and legal requirement of ensuring access to computer-based communications equipment and software for people who are blind or visually impaired. It is the

hope of AFB that the Commission will use this *Further Notice of Inquiry* as an opportunity to rethink its categorization of various communications services and to reach the conclusion that many of the services previously classified as "enhanced" or "information" services are functionally "telecommunications" services and that the equipment that enables those service fits squarely within the definition of customer premises equipment ("CPE").

I. Introduction

3. AFB applauds the Commission for viewing the instant proceeding as an opportunity for it to ensure that the disability community is not denied access to Internet and computer-based services and technologies.[1] AFB encourages the Commission to use this opportunity to take a fresh look at how it treats Internet and computer-based communications services. AFB argues throughout the instant comments that the Commission's "legacy" (historical) treatment of email and other web-based services is far too narrow. The Commission, at least as it relates to Section 255, can ill afford to place Internet and computer-based services in the all too inaccessible "information services" black box. Specifically, AFB believes that email and other text-based communications services, if not narrowly defined as telecommunications services for the purposes of Section 255, are functionally telecommunications services and therefore must fall under the protections of Section 255. These services are forming the basis of our economy, and therefore access to these services is a prerequisite for virtually any job.

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[1] *Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996; Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities*, (Continued...)

4. The Commission has a momentous opportunity, as we begin the new millennium, to rethink its legacy definitions of basic/telecommunications and enhanced/information services. As communications technologies converge, strict adherence to the legacy treatment of these distinctions does not reflect the way we communicate. As the distinction between the computer workstation and the telephone handset disappears, various functions are increasingly provided by linking these two devices together, and not only for voice calls using Internet Telephony. AFB itself has recently upgraded its telephone switch technology and has purchased, among other things, a message management module to provide certain capabilities, in particular the ability to retrieve email over a touch-tone voice telephone. Therefore, it becomes more important to apply these definitions along functional lines. As the baby-boom generation continues to age and more and more Americans acquire disabling conditions, including visual impairment, the Commission must ensure access so that all Americans can benefit from and use today's and tomorrow's communications technologies. Thus, as a matter of public policy, AFB believes it is time for the Commission to extend the worthy goals of Section 255 to the communications universe that now exists and to provide the proper and consistent regulatory framework for ensuring access to future communications technology innovations.

5. In crafting this revised, functional and practical public policy toward access to communications technology, we encourage the Commission to shed the mantra that it does not and will not regulate the "Internet." There can be no doubt that the Commission does indeed already regulate the Internet, at least to the extent that it regulates the underlying communications systems upon which the Internet is built. Similarly, we urge the Commission to

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(...Continued)
WT Docket-198, Report and Order and Further Notice of Inquiry (Rel. September 29, 1999) at (Continued...)

recognize that the "enhanced" or "information" services industry in no longer fledgling (as it may have been when the Commission created the basic/enhanced distinction in *Computer II*). Without a functional and practical approach to the current use of text-based Internet and computer-based systems, people who are blind or visually impaired will continue to be left out of the communications revolution. It would be a true shame if the Commission fails to act on this opportunity to ensure that all Americans have access to the next generation of telecommunications due to rote reliance on legacy treatment of telecommunications and information services.

6. AOL's recently announced purchase of media giant Time Warner for an estimated $166 billion in stock makes this the biggest corporate merger ever and creates a company with combined annual revenue of $30 billion.[2] This news, along with market developments that have resulted in new major Internet companies such as Yahoo! with a market capitalization of over 90 billion dollars[3], provide ample evidence that the Commission can no longer rely on the claim that this "nascent" industry would suffer were the Commission to require that the Internet industry provide Section 255 access to the disabled. Rather, it is the disability community that would suffer from a lack of access as Internet and computer-based services become replacements for today's telecommunications services and equipment.

7. In order for the Commission to ensure that people who are blind or visually impaired do not become third-class citizens, it must ensure that they have access to next

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(...Continued)
¶173 (*Section 255 Report and Order and Further Notice of Inquiry*).

[2] *AOL to Buy Time Warner for $166B cited* at http://my.aol.com/news/story.tmpl?table=n&cat=0180&id=2000011009113640

[3] At midday on January 13, 2000, Yahoo! had a market capitalization of $93 billion.

generation communications services. Already today's communications services from email, and web pages, to telephones with visual read-outs and touch screens, to multifunction wireless communications devices with on-screen menus, collectively are too frequently unusable by people who are blind or visually impaired. Access to communications systems by the visually impaired is likely to be more and more difficult and, at the same time, more and more important as baby boomers age and technology continues to advance. Unfortunately, as currently construed, Section 255 only addresses the telephone access barrier facing these Americans. People who are blind or visually impaired consider their ability to access information and communicate through their computers indispensable – at the level of a fundamental human and civil right.

8. AFB believes that Section 255 contains the authority and policy mandate for the Commission to require communications equipment manufacturers, service providers and the software that installs and runs those systems to offer audible and other accessible alternatives to text based Internet and computer-based services. Below, AFB presents the Commission with four separate legal premises by which it can and must find that email and other text-based Internet services and computer-based services fall under the protections of Section 255.

II. Discussion

9. Email is ubiquitous. It is used for simple conversation, for contact with many people at once, college courses, and ecommerce, among other uses, and its use continues to grow. The ability to use text-based Internet services and computer based telecommunications services is often a prerequisite of employment. Moreover, manufacturers of wireless telephones

are adding text-based services including email at an astonishingly rapid rate making access requirements even more critical. Motorola's i1000plus wireless telephone which will allow a user to receive an email and if a phone number is contained in the sender's "signature" the telephone will allow the user to call that number with a touch of a button.[4] The question of access for people who are blind to this type of telephone is dramatic: If the i1000 allows the user to call a number in an email how can a person who is blind do that if she cannot access the email function of the telephone? If all new wireless telephones come with web browsing at start-up[5] how will blind consumers manage to switch to the pure telephone function and to keep up with expectations of employers who want them to used the web-based function? AFB believes that Section 255 covers such telecommunications technologies and therefore requires the Commission to ensure that people who are blind or visually impaired have access to such technologies.

A. Email is a Common Carrier Service

10. Throughout this proceeding, and other related proceedings, the Commission has observed that the basic/enhanced dichotomy of *Computer II* was essentially replaced by the telecommunications/information services dichotomy in the Telecommunications Act of 1996.[6]

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[4] Christian Hill, *Siber-Talk: One of the gurus of wireless communications holds forth on why we are entering a new age of Internet access*, Wall Street Journal, September 20, 1999 at R27. Further by the third of fourth quarter of this year, just about every wireless telephone will have web browsing capability. Christian Hill, *Siber-Talk: One of the gurus of wireless communications hold forth on why we are entering a new age of Internet access*, Wall Street Journal, September 20, 1999 at R27.

[5] Lisa Bransten, *In the Palm of Your Hand: Companies are searching to fit the Web on screens of hand-held gadgets*, Wall Street Journal, September 20, 1999 at R6.

[6] The Commission has previously determined that the categories of telecommunications service and information service are mutually exclusive just as the definitions of basic and enhanced services were. *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report to Congress, 133 FCC Rcd 11501, 11507-08 (1998) (*Universal Service Report to Congress*). The (Continued...)

This legacy dichotomy is important because the Commission has preliminarily determined that many computer-based communications services, including email[7] and web-pages,[8] are enhanced/information services and therefore not covered under the Section 255 protections.

11. AFB urges the Commission to rethink its legacy treatment of information services, from *Computer II*[9] to the present day, that an enhanced service is "any offering over the telecommunications network which is more than a basic transmission service."[10] As more and more telecommunications services become computer-based and converge,[11] the Commission must look to the functionality of the service in question to determine whether to apply Section

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(...Continued)
Commission has also determined that information services and enhanced services should be interpreted to cover to the same functions, that is have the same meaning. *Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as amended,* CC Docket No. 96-149, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 21905, 21955-56 (1996) (*Non-Accounting Safeguards Order*) (*subsequent history omitted*).

[7] *Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996; Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities*, WT Docket-198, Notice of Proposed Rulemaking, 13 FCC Rcd 20391, 20411 (1998) *citing Bell Operating Companies Joint Petition for Waiver of Computer II Rules*, Order, 10 FCC Rcd 13578, 13770-74, App. A (Com. Car. Bur 1995).

[8] *Section 255 Report and Order and Further Notice of Inquiry* at ¶ 107.

[9] *Amendment of Section 64.702 of the Commission's Rules and Regulations (Computer II)*, Tentative Decision and Further Notice of Inquiry and Rulemaking, 72 FCC 2d 358 (1979) (*Tentative Decision*), 77 FCC 2d 384 (1980) (*Final Decision*), *recon.*, 84 FCC 2d 50 (1980) (*Reconsideration Order*), *further recon.*, 88 FCC 2d 512(1981) (*Further Reconsideration Order*), *affirmed sub nom. Computer and Communications Industry Ass'n v. FCC*, 693 F.2d 198 (D.C. Cir. 1982), *cert. denied*, 461 U.S. 938 (1983).

[10] *Computer II Final Decision*, 77 FCC 2d at 420.

[11] In a recent speech to the Consumer Electronics Show, Chairman Kennard stated that "the rules where conduit defined content have been rewritten by digitization...and new consumer electronics devices are blended versions of old." Chairman William E. Kennard, IPTV: From the Vast Wasteland to the Vast Wonderland, Speech Before the Consumer Electronics Show (January 7, 2000) *in* http://www.fcc.gov/Speeches/Kennard/2000/spwek001.html.

255 protections. AFB further urges the Commission to recognize that it regulates all the underlying telecommunications systems on which the Internet is built, so that the fallacy that "the Commission does not regulate the Internet" does not interfere with right of people who are blind or visually impaired to effectively participate in the economy of the 21st Century.

12. The Commission's recent determination that email is an information service overlooks previous Commission precedent that an email type service was a common carrier service subject to Title II regulation. [12] In *Graphnet*, the Commission considered whether a proposed service called Electronic Computer Originated Mail ("ECOM") was subject to regulation under Title II.[13] ECOM was a service to be offered by the U.S. Postal Service using the electronic facilities of Western Union where "a user will prepare its messages in electronic form and transmit them over communications channels to Western Union's facilities...employing its switching and communications facilities, [it] will then transmit the messages to the appropriate destination post offices...for physical delivery by postal employees."[14] The Commission held that "It is undisputed that ECOM is designed to offer consumers a service whereby information can be transmitted from a point of origination to one or more points of termination by means of electronic communications facilities. We therefore conclude that ECOM will be a communications service, pursuant to the statutory definition in Sections 3(a) and 3(b) of the Act."[15] The Commission went on to say that "Not only is the proposed service 'communications by wire or radio' it is also a common carrier activity...of a for-profit service

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[12] *Request for Declaratory Ruling and Investigation by Graphnet Systems, Incorporated*, CC Docket No. 79-6, Memorandum Opinion and Order, 73 FCC 2d 283 (1979) (*Graphnet*).

[13] *Id.*

[14] *Id.* at 284.

[15] *Id.* at 288. Then Section 3(a) is currently Section 3(52).

which affords the public an opportunity to transmit messages of its own design and choosing."[16] The *Graphnet* decision, therefore, gives the Commission the precedent it needs to determine that email-type services are subject to Section 255 protections.

13. Today's email service strikingly resembles the service proposed in *Graphnet*. In *Graphnet*, a user would originate a message and send it to Western Union via electronic transmission; Western Union would check for the proper format and then, using its switching and transmission facilities, "switch and queue the input of transmission for electronic delivery" to various post offices from which the messages would then be printed and delivered.[17] Today, similarly, a "user" would "originate" an "electronic message", which would be "sent" to an ISP; the ISP would use its "switching and transmission facilities" to deliver that electronic message to the intended recipient. Given the precedent in *Graphnet*, AFB fails to perceive how the current Commission policy that email is an information service can stand. Because the Commission held in *Graphnet* that ECOM, a precursor to present day email, was a common carrier service subject to Regulation under Title II, it must perforce cover email under the Section 255 protections.

B. Email and the Equipment that Provides Email is Functionally CPE

14. As stated before, the Commission in this proceeding and other related proceedings has preliminarily determined that email and other text-based Internet services are information services.[18] AFB believes, however, that when the equipment used to send and receive email and other Internet text-based services is treated functionally, it fits squarely within the definition of

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[16] *Graphnet* at 289 (*emphasis added*).

[17] *Id.* at 285.

[18] *Section 255 Report and Order and Further Notice of Inquiry* at ¶107.

CPE.[19] Moreover, public policy demands that the Commission rethink how it defines the legacy services at issue here. As Americans continue to age, access by people who are blind or visually impaired will become more and more important. Now is the time for the Commission to ensure all Americans, not just those that can see, can effectively communicate in the 21st Century.

15. In the *Section 255 Report and Order and Further Notice of Inquiry*, the Commission determined that stand-alone software that originates, terminates and routes telecommunications is "equipment" under the definition of CPE.[20] Given this determination, the software that is used for email and other computer-based services is functionally CPE, and therefore requires accessibility under Section 255.

16. By parsing the definition of CPE, it becomes clear how equipment and software that handles email, along with other text-based Internet services, is CPE. The software is first used to "originate" a message – when email is drafted on a computer or other similar device, the user has originated a message. That user then generally uses a modem to place a telephone call or dial into the telephone network where that electronic message is "routed" to the service provider. The service provider acts as a mere switch and routes that electronic message to the intended recipients computer where the communication "terminates." Thus, the equipment and software used to send electronic messages is CPE, and subject to Section 255.[21]

17. AFB further urges the Commission to determine that, functionally, email is no different than plain old telephone service. Like a telephone call, and as discussed above, like

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[19] Customer premises equipment ("CPE") means "equipment employed on the premises of a person (other than a carrier) to originate, route, or terminate telecommunications." 47 U.S.C. § 153(14).

[20] *Section 255 Report and Order and Further Notice of Inquiry* at ¶83.

[21] Modems, often used for Internet services are customer premises equipment and subject to the Commission's Part 68 rules.

ECOM, and indeed like facsimile, a user transmits information without a change in the form or the content of the information between points specified by the user. An email address is really nothing more than a telephone number. Email in many ways has taken the place of placing a telephone call. The Commission has itself found that email is an alternative to telephone service.[22] Given the functionality for which email is used, the Commission should determine that it is functionally no different than telephone service, at least for the purposes of Section 255, and ensure that all Americans have access to this service. Failure to bring such equipment and software within the scope of Section 255 would create a tremendous gap in coverage that would make it virtually impossible to implement its provisions.

18. AFB is aware, of course, that an information service is defined in part as "the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications."[23] Nonetheless, the storing or processing of any such communications has become so seamless as to make distinctions along these lines virtually impossible. In addition, a regular telephone call requires a great deal of computer processing for switching and signaling, certainly no less than an email sent via an ISP.

C. Ancillary Jurisdiction

19. AFB has offered, as discussed above, legal and policy support for its belief that email and other similar Internet text-based computer services fit squarely with the definitions of telecommunications and CPE and therefore fall under the Section 255 protections. However, should the Commission reject this argument, the Commission clearly may and, in AFB's view,

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[22] *Section 255 Report and Order and Further Notice of Inquiry* at ¶ 107.

[23] 47 U.S.C. § 3(20).

must use the *Further Notice of Inquiry* to extend Section 255 protections to these services through the use of ancillary jurisdiction.

20. The Commission, in the *Further Notice of Inquiry*, was concerned that software applications may shift the potential for accessibility solutions from the telephone network to the end user's premises.[24] It is AFB's observation that this has already occurred. The Commission notes that the *Section 255 Report and Order and Further Notice of Inquiry* does not currently reach a software telephone (*i.e.*, Internet telephony, or for that matter, email) or the personal computer on which it resides.[25] AFB contends throughout these comments that the Section 255 protections should extend to such equipment.

21. In the *Section 255 Report and Order and Further Notice of Inquiry* the Commission found that voice mail and interactive menu services were so integral to the use of telecommunications services today that failure to provide access to these services could defeat the effective implementation of Sections 255 and 251(a)(2).[26] AFB urges the Commission to reach the same conclusion regarding computer-based communications services, like email and web pages.

22. The Commission's reason for extending ancillary jurisdiction to voice mail and interactive menu services was the most fundamental: to ensure and facilitate the accessibility and usability of telecommunications services and equipment to those persons who currently do not receive full access and use of those services.[27] The same reasoning must apply to other computer-based information services even though the Commission stated in the *Section 255*

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[24] *Section 255 Report and Order and Further Notice of Inquiry* at ¶184.

[25] *Id.*

[26] *Id.* at ¶99.

Report and Order and Further Notice of Inquiry that email, electronic services, and web pages are "alternative" ways to receive information which are already available over the telephone, and therefore somehow not deserving of Section 255 protection.[28]

23. If it is true, as the Commission staff has opined in a recent White Paper,[29] that "the Internet has created the information revolution, and it is on its way to becoming the single most important communications tool in existence," then the Commission must ensure that all Americans, including people who are blind or visually impaired, have access. The *Internet White Paper* goes on to say that "Americans are using the Internet to communicate with each other like never before, as email has become the communications medium of choice for millions of users."[30]

24. Email and web pages are not just alternatives, but must be viewed as substitutes for the telephone. It makes no sense for the Commission to determine that voice mail and interactive menu services are fundamental - so fundamental as to require Section 255 protection, yet deny email access to people who are blind or visually impaired, if the Internet is the "single most important communications tool in existence" and the "communications medium of choice for millions of users."

25. There are many uses of email for which the telephone is not an alternative or even a substitute. For example, when a user wishes to communicate with more than one other person, or to send a document electronically, the telephone is not an alternative. Instead, the message or

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(...Continued)
[27] *Id.* at ¶ 103.

[28] *Section 255 Report and Order and Further Notice of Inquiry* at ¶107.

[29] *The FCC and the Unregulation of the Internet*, Jason Oxman, OPP Working Paper No. 31 (July, 1999) at 4 (*emphasis added*) (*Internet Working Paper*).

document must be sent electronically, using email (or perhaps via facsimile). Is it not discriminatory to force people who are blind or visually impaired to make several telephone calls to deliver the same message when a single message can be sent to multiple addresses with the use of email by a person who can see? AFB believes that access to email is no less fundamental than voice mail and interactive menu services.

26. Similarly, the World Wide Web is used for such things as research, investing, travel planning, and shopping, among others. Further, many businesses and other organizations will suggest to consumers in other media (radio, newspaper, magazines, TV, etc.) go to a cited web page for additional information.[31] For these purposes, the telephone is not a viable alternative. Further, AT&T recently filed an application with the Commission to cease providing its 800 toll-free directory and instead make the directory available on the web.[32] Should this become reality, how is a person who is blind or visually impaired to gain access to such information and thus complete a telephone call? Access by people who are blind or visually impaired to web pages is an absolute must to effectively participate in society. The Commission must not deny millions of those who are blind or visually impaired the access to the communications revolution Congress envisioned when it enacted Section 255.

(...Continued)
[30] *Id.*

[31] The FDA recently adopted a mechanism for providing consumers with the detailed "label" information in prescription drug broadcast advertising which includes a toll-free number; print advertising or brochures; and an Internet web page address. *Guidance on Consumer Directed Broadcast Advertisements*, FDA Docket No. 97D-0302.

[32] *AT&T Communications Section 214 Application to Discontinue Toll Free Directory Assistance Service, 1-800-555-1212, Not Automatically Granted*, Public Notice, DA-99-2769, Rep. No. 99-58 (December 10, 1999). The Commission denied automatic grant of AT&T's application but will act upon the grant based upon the merits. *Id.*

D. The Commission's Policies on Access to Voice Communications for the Hearing Impaired Provide a Model for Access to Text-Based Communications for the Visually Impaired

27. The Commission, in the *Section 255 Report and Order and Further Notice of Inquiry*, extended Section 255 protection to voice mail and interactive menu services through the use of ancillary jurisdiction, which primarily benefits the hearing impaired.[33] AFB supports access for all persons with disabilities, but given the fact that the extending Section 255 protections to voicemail and interactive menu systems was done primarily to benefit people who are deaf or hard of hearing, AFB contends that access to the "necessary instruments of daily life"[34] is equally important for people who are blind or visually impaired. Failure to provide people who are blind or visually impaired access to Internet and computer-based text-based communications services as we enter the 21st Century would literally leave these Americans out of the continuing telecommunications revolution and make it more and more difficult for people who are blind or visually impaired to participate in the information economy.

28. In addition to the rules adopted to ensure access to the communications of the next millennium in the *Section 255 Report and Order and Further Notice of Inquiry*, the Commission has an entire subpart of its rules designed to ensure access for people who are deaf

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[33] In her separate statement to the *Section 255 Report and Order and Further Notice of Inquiry*, Commissioner Tristani wrote that "Those who are hard of hearing...simply may not be able to respond as quickly as the [interactive menu] system demands. A TTY-user, working with a communications assistant, may have to spend forty-five minutes, and endless phone calls...just to check an account balance." *Separate Statement of Commissioner Gloria Tristani* to the *Section 255 Report and Order and Further Notice of Inquiry*. Commissioner Powell, quoting an unidentified commenter wrote "without access to certain enhanced services, such as automated voice response systems and voice mail services, individuals who are deaf or hard of hearing will continue to be barred from enjoying even basic access to the telecommunications network." *Separate Statement of Commissioner Michael Powell* to the *Section 255 Report and Order and Further Notice of Inquiry (Powell Statement)*.

[34] *Powell Statement*.

or hard of hearing to the telephone network.[35] 47 C.F.R., Part 64, Subpart F is titled "Telecommunications Relay Services and Related Customer Premises Equipment for Persons with Disabilities." This portion of the Commission's rules provides primarily for text access to the voice telephone network for people who are deaf and hearing impaired. AFB applauds the attention paid to people who are deaf or hard of hearing throughout the Commission's rules. Nonetheless, AFB suggests that such provisions in the Commission's rules that provide access to deaf or hard of hearing may be an appropriate model for similar access provided to people who are blind or visually impaired to current and emerging telecommunications services.

29. The Commission has sought comment in the instant proceeding on whether the failure to bring CPE, Internet, and computer-based equipment within the scope of Section 255 would create a serious gap so as to interfere with the Commission's ability to effectively implement the provisions of Section 255.[36] The failure of the Commission to act not only will perpetuate the gap between the disabled and non-disabled, but would also fail to provide access to text-based telecommunications for people who are blind or visually impaired in contrast to the rules which provide access to voice communications for people who are deaf or hard of hearing.

30. AFB, therefore, urges the Commission, under its general rulemaking authority, to consider adopting rules parallel to those in 47 C.F.R. Section 64.601 *et seq.* so that people who are blind or visually impaired will have access to today's and tomorrow's text-based telecommunications services. The Commission has already held in this proceeding that it has subject matter jurisdiction over the communications at issue and that its authority includes non-

[35] Title 47 C.F.R., Part 64, Subpart F. 47 C.F.R. §§ 64.601-608. This portion of the Commission's rules was amended in response to the Americans with Disabilities Act of 1990, S. 933, Pub L. 101-336, 104 Stat. 327 (1990).

[36] *Section 255 Report and Order and Further Notice of Inquiry* at ¶185.

carrier provided CPE and information services provided by non-carriers.[37] Also, as discussed in Section II. A., above, the Commission held in *Graphnet* that the ECOM service was a common carrier service subject to Title II regulation. Thus, the Commission has the legal precedent for adopting rules to benefit people who are blind or visually impaired, parallel to those it has already adopted to benefit people who are deaf or hard of hearing. The Commission cannot fail to ensure that people who are blind or visually impaired are able to participate in the communications revolution and have access to text-based Internet and computer-based communications systems. In essence, denying people who are blind or visually impaired access to computer-based communications would be a denial of their fundamental human and civil rights.

E. Equipment Needs

31. AFB believes that Internet and computer-based communications systems can be made accessible to people who are blind or visually impaired if equipment manufacturers follow the rules set forth in the *Section 255 Report and Order and Further Notice of Inquiry* which were based on the Telecommunications Act Accessibility Guidelines established by the Access Board.[38] This is so, not only for equipment that handles email and other text-based services, but also for the software that allows access to those services. Other access features (as set forth in the *Section 255 Report and Order and Further Notice of Inquiry*) would include full control of all input and navigation (*e.g.* through keyboard or voice commands) and adjustable visual

[37] *Id.* at ¶¶95, 98.

[38] 47 C.F.R. § 6.3 and Architectural and Transportation Barriers Compliance Board (Access Board), Telecommunications Act Accessibility Guidelines, 36 C.F.R. Part 1193, 63 Fed. Reg. 5608-41, pub. Feb. 3. 1998.

displays.[39] Similarly, where full accessibility in not "readily achievable," AFB requests that all equipment used for communications include a Standardized port for the use of assistive technology.[40] Significantly, the Trace R&D Center ("Trace") has stated in its comments that, in the not too distant future, adding speech output to a device is likely to cost less than the plastic case in which the product is housed.[41] Therefore, it would seem that audio output is readily achievable for both equipment and the software which runs so many of today's telecommunications systems.

32. Further, software installation often requires working through an installation menu to install the software, including interactive menu systems, email, and other telecommunications services. Thus, the installation software must also be accessible as well as the actual service itself. Alternates to icons and text must be provided so the software can be properly installed. The importance of software in modern communications was underscored by the suit brought by the National Federation of the Blind against America Online, Inc (AOL). The suit is principally about access to computer software. It alleges that AOL's software uses a mail client which is incompatible with state-of-the-art PC-based screen access technology used by blind or visually impaired persons. This is an all too common problem. Software developers too frequently use controls that are inaccessible because of their design. For example, controls that are not accompanied by text labels cannot be "read" by screen access software. Similarly, designers of applications fail to provide keyboard equivalents for mouse-driven commands, including buttons, scroll windows, text entry fields, and pop-up windows. Thus, if an email client cannot be used with screen reader technology,

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[39] *Id.*

[40] *Id.*

[41] Trace R&D Comments in response to the *Section 255 Notice*, filed October 21, 1999 at page 2.

people who are blind or visually impaired are precluded from initiating such a communication - just as people who are deaf or hard of hearing are precluded from initiating a phone call because of the presence of voice mail or an interactive menu. Attached as appendix A are guidelines available on AFB's Web site for creating applications that are accessible for the visually impaired. We also note that the world wide web consortium's web accessibility initiative has established guidelines for making Web content accessible and soon will publish guidelines for web authoring tools and web browsers (user agents). While these guidelines are voluntary, they demonstrate that accessible design is possible and valuable.

33. Perhaps even more persuasive than the Trace comments is the recent announcement by Ford Motor Company that it will equip its 2001-model-year vehicles with voice-activated telematics systems which will allow drivers to monitor email, get stock quotes, information on road conditions or listen to the latest news.[42] If Ford Motor Company is announcing voice-activated Internet connections and returning audio email, then that type of access for people who are blind or visually impaired is clearly readily achievable. Yet another example of readily achievable equipment is a product developed by Tellme Networks Inc. which will allow users, by dialing a toll-free number, to speak directly to a net "portal" and retrieve computer-generated spoken answers.[43] There can be no doubt that audio output for email, web pages and other computer-based communications services is readily achievable. The Commission, through Section 255, must ensure that telecommunications manufacturers and providers do not just pick and choose where to employ this exciting technology, but make this

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[42] Ford to Bring Internet to Millions of Vehicles *cited* at http://webevents.broadcast.com/Ford/autoshowdetroit0100/news1.html.

[43] Webheads Lend me Your Ears *cited* at http://www.businessweek.com/1999/99_52/b3661132.htm.

type of technology in all Internet and computer-based systems. Furthermore, the Commission must ensure that the equipment, software and services are deployed in such a way that people who are blind or visually impaired have full access. As Commissioner Ness noted, not only will the disability community benefit from Section 255, the non-disabled will also benefit from creating communications services that are accessible to all.[44]

34. While the tools to ensure accessibility either exist or are being developed (see above), AFB is convinced that without federal regulations requiring access, industry will either overlook or fail to include access features, or will develop solutions that do not provide full access. For example, providing a mere "audio dump" of the contents of a display screen does not provide the user effective access since he or she cannot selectively hear portions of the screen, highlighted text, or other attributes. Regulations are needed to insure the consistency of accessibility across all platforms, whether the plain old telephone system or computer-based. The tools necessary for people who are blind or visually impaired to access Internet and computer-based communications services are particularly important as more and more jobs require access to email, web pages and other text based telecommunications. Without access, people who are blind or visually impaired face additional barriers to employment.

III. Conclusion

AFB thanks the Commission for the opportunity to comment on the importance of ensuring that people who are blind or visually impaired will have access to text-based Internet

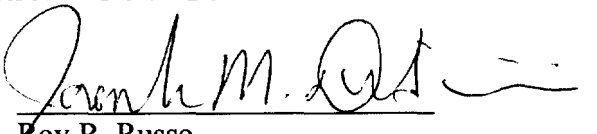
[44] *Separate Statement of Commissioner Susan Ness* to the *Section 255 Report and Order and Further Notice of Inquiry.*

and computer-based communications services. AFB has provided the Commission with four separate legal theories to support the determination that Section 255 covers those communications services. AFB hopes that the Commission has the vision to require that all communications products will be accessible to people who are blind or visually impaired. The Commission and, more important, people who are blind or visually impaired, cannot afford to wait several years only to discover that millions of Americans have been left out of the telecommunications revolution and unable to participate in the information economy of the 21st Century because access under Section 255 was not required.

In summary, text-based telecommunications services are so ubiquitous, that people who are blind or visually impaired will be unable to participate in all mainstream activities in all aspects of their lives, unless the Commission acts to provide access under Section 255. The road to the information superhighway is being paved with great technologies, the Commission need only to ensure that people who are blind or visually impaired have access to the information superhighway.

Respectfully submitted

AMERICAN FOUNDATION FOR THE BLIND

By: 

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January 13, 2000

Appendix A

Creating Applications Accessible to People Who Are Visually Impaired

Prepared by: National Technology Access Program
Date: June 1998
Send comments to janina@afb.net

Did you know?

- Blind and visually impaired people work in virtually every sector of our economy.
- The rate of blindness and severe visual impairment increases sharply with age.
- Blind and visually impaired people are as likely as the general population to use computers and the Internet.

People who are blind or visually impaired do use computers. In fact, many consider their ability to access information and to communicate through their computers indispensable - at the level of a fundamental human and civil right.

Anyone using a computer today must continually perform two tasks:

1. Read information presented on the computer monitor (or other output system); and
2. Provide command-level or data-level input to the computer, generally through a keyboard and a pointing device such as a mouse.

People who are blind are not able to use a pointing device, since use of a pointing device requires the user to see and manipulate an on-screen cursor. People with some useful vision may or may not be able to use a pointing device. However, people who are blind or visually impaired generally have no problem using a computer keyboard. The accommodations required to make a computer usable by someone who is blind or visually impaired are, therefore, replacements for the user's inability to see and use a computer screen. To put it in other words, people who are blind require accommodation to the computer's output systems rather than its input systems.

Individuals who are visually impaired and who cannot be accommodated with available fonts and colors often use screen magnification programs to enlarge text and images. People who are blind access a computer using a speech synthesizer or a refreshable braille display. Current versions of the software that accompanies a speech synthesizer or braille display intercept information as it is being sent to the screen and store it in a memory construct known as the off-screen model (OSM). An off-screen model is essentially a database that holds the contents of the screen including text, graphics and controls. The screen reading or braille program then accesses the information in the OSM and renders it in speech or braille.

Modern screen readers do not simply "read" the screen. Rather they rely on an analysis of the screen to read certain portions and not others when the screen is first presented. The screen reader will, for example, attend to a system cursor or a highlight bar. Most importantly, the user is given tight control over reading discrete units of the screen, such as a window title bar, menu, or status line. The user can also silence speech when the information desired has been obtained. There is a fundamental distinction between the temporal, speech-based interface primarily used by people who are blind, and the static, video-display interface familiar to sighted users. A braille display is static just as its video analog, though able to display only a few characters at a time - generally no more than 80 - and unable to display graphics.

Screen magnification programs also give users a considerable amount of control over how they view information presented on the screen. For example, using a combination of automated and manual commands, the screen magnifier can be set to follow screen activity, zoom in on specific screen locations, and scroll through text. As with other assistive technology applications, the performance of a screen magnifier can be enhanced if the software applications they are expected to work with are designed with accessibility in mind.

It is important to consider the needs of individuals with disabilities during the initial product development phase. Adding accessibility features later in the development process is time-consuming and expensive. You will find that features included to improve a product's accessibility are generally consistent with good design practices that will benefit all users. Examples of accessible design strategies of particular importance to users with visual impairments, but which often benefit other users, are listed below. Links to detailed guidelines are included at the end of this document. These development guidelines should be consulted early in the software development process.

Design Strategies

1. **Use consistent, standard user-interface elements.**

   Create an interface that is consistent throughout the program and consistent with other applications so individuals can learn to navigate the program quickly with skills they have developed using other applications. Use operating-system -supplied controls, toolbars, menus, cursors, and dialogs whenever possible. Many screen readers, and other assistive technology software, have been designed to recognize standard components. For example, if custom components are used, a screen reader may not be able to render that object in speech, making that element, and possibly the whole application, unusable.

2. **Create a flexible user interface.**

   Allow users to customize the interface to meet their needs. Pass through operating system, settings that will impact accessibility, such as color, contrast, and font size settings; cursor styles and blink rates, and system sounds. All computer users benefit from having the ability to customize display settings.

3. **Allow full keyboard navigation.**

   Allow keyboard access to all program functions and features. All aspects of the program, including installation, should be operable without a pointing device. Be aware that assistive technology software is often keyboard driven, so applications must also allow other programs to share the keyboard.

4. **Label all graphics and icons.**

   Provide text labels for all iconic elements so they can be rendered by screen readers and braille displays. Users who are visually impaired may be able to decipher a text label easier than they can recognize an icon. Similarly, text labels help sighted users learn the function of each icon.

5. **Use standard means of displaying focus.**

   Display the application focus using operating-system-supplied tools, such as the system caret. Accessibility aids, such as screen readers or magnifiers, must be able to follow the keyboard focus at all times.

6. **Do not rely on color alone to convey information.**

   Provide redundant means of conveying information. Color-based distinctions may be invisible to people who are color blind, who are visually impaired, or who use speech or braille access technology. Provide user customizable font styles and sizes and user customizable foreground and background colors using the operating system display settings or application specific preferences.

7. **Do not place time limits on input activities or messages.**

   Assistive technology users, new computer users, individuals with learning disabilities, and individuals new to the language may take several seconds or minutes to locate and interpret such things as a control within a

dialog box, an alert message, or a tool tip.

8. **Support accessibility in installation and configuration.**

   The application should adhere to the above principals in its installation, configuration, and all command-level routines so that it may be installed and configured by a user using assistive technology.

Test with Users

Usability studies can be based on a number of different methodologies. The following strategies may assist you in incorporating accessibility issues into usability studies.

- When planning a new product, include individuals with visual impairments in your user profiles.
- Work with developers of assistive technology to test your product throughout its development.
- Hire a usability specialist knowledgeable in accessible design or provide training to existing staff.
- Perform product evaluations using user profiles of persons with disabilities. For example, evaluate the program using only a keyboard.
- Assume that others will work with an inverted display (dark background) and a large font size. Carry out any task analyses under these conditions.
- Include accessibility elements, such as those described above, in evaluation checklists or development guidelines.
- Work with local universities, schools, and disability organizations and clubs to find users with visual impairments willing to test your products.
- Monitor, post questions to, and find beta testers through, disability-related electronic mailing lists.
- Obtain a set of accessibility aids, such as a screen reader and speech synthesizer or screen magnification software. Carry out product evaluations while accessing the program using these tools.

Design and Test the Support Documentation.

Create documentation in an accessible form, such as in text-only HTML or ASCII. Document all keyboard access features and other features that may affect a user's interaction with the application.

Assess the Design in the Field.

- Include an electronic means of registering the application.
- Make sure technical support staff are aware of the program's accessibility features.
- Actively solicit feedback from users with disabilities through electronic mailing lists and disability organizations.
- Solicit feedback from developers of assistive technology.
- Solicit feedback from teachers of students with visual impairments.

Making the Most of Your Accessible Software Application.

An accessible application will provide many benefits to thousands of individuals with visual impairments. However, as a designer or manufacturer, the creation of an accessible application also will provide you with several added benefits. The ability to design accessible products will become particularly important as more and more users begin

to access computers in nontraditional ways. Federal, state, and local government agencies and educational institutions, as well as private companies, that must comply with the Americans with Disabilities Act and the Telecommunications Act of 1996 need to consider the accessibility of the products their employees and customers use. Thus, an accessible product has several marketing advantages over its competitors.

Additional Resources

American Foundation for the Blind
AFB Technology Resources
http://www.afb.org/i_res.html#technology

Artic Technologies
How to write application programs that screen access programs can read!
http://www.artictech.com/howprog.htm#top

IBM
What is accessible software?
http://www.austin.ibm.com/sns/software.html

IBM Guidelines for Writing Accessible Applications Using 100% Pure Java
http://www.austin.ibm.com/sns/access.html

Microsoft
Checklist of Accessibility Design Guidelines
http://www.microsoft.com/enable/dev/guidelines.htm

The Microsoft Windows Guidelines for Accessible Software Design Download Guide from:
http://www.microsoft.com/enable/dev/guidelines.htm

Sun Microsystems
Designing for Accessibility
http://www.sun.com/tech/access/software.guides.html

Accessibility Quick Reference Guide
http://www.sun.com/tech/access/access.quick.ref.html

Trace Research & Development Center
Application Software Design Guidelines
http://www.trace.wisc.edu/docs/software_quidelines/toc.htm

U.S. Access Board
Telecommunications Act Accessibility Guidelines
http://www.access-board.gov/rules/telfinal.htm

U.S. Department of Education
Requirements for Accessible Software Design
http://ocfo.ed.gov/coninfo/clibrary/software.htm

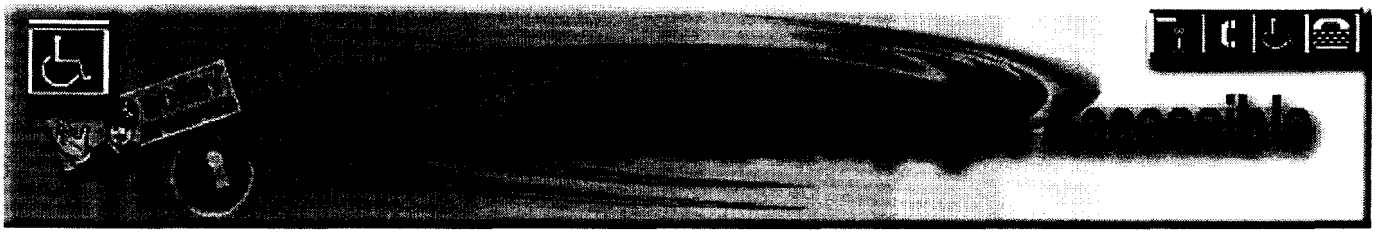
World Wide Web Consortium Web Accessibility Initiative
WAI Accessibility Guidelines: Page Authoring
http://www.w3.org/TR/WAI-AUTOOLS

In keeping with AFB's mission to achieve equality of access to information for people who are blind or visually impaired, this document is available, upon request, in one or more of the following formats: electronic file, braille, large print, and audio recording.

Return to Technology

Return to AFB Home Page

Please direct your comments and suggestions regarding this web site to the AFB Information Center at afbinfo@afb.net



Check Your Page for Accessibility
Accessibility Tips

One of the major focus areas for the Center for Information Technology Accommodation has been addressing accessible web design. We suggest using the following sites to test your webpage or website for accessibility: WEB Metrics, Bobby 3.1 Analysis, W3C HTML Validator and CSS Validator. Bobby is a free public service web-based tool offered by CAST, Center for Applied Special Technology, that analyzes web pages for their accessibility to people with disabilities. The HTML and CSS Validators offered by the W3C, checks HTML documents for compliance with W3C HTML recommendations and other HTML standards.

The World Wide Web Consortium (W3C), through their Web Accessibility Initiative, has been developing three sets of guidelines for accessibility: Web Content (for webmasters); Authoring Tools (for website/webpage authoring environment developers); and User Agents (for browser and assistive technology developers). The Web Content guidelines were adopted as an official recommendation on May 5; Authoring Tools and User Agent guidelines are still in the working draft stages.

Web Content Accessibility Guidelines 1.0 (May 5, 1999)

1. **Provide equivalent alternatives to auditory and visual content.**
2. **Don't rely on color alone.**
3. **Use markup and style sheets**
4. **Create tables that transform gracefully.**
5. **Ensure pages featuring new technologies transform gracefully.**
6. **Ensure direct accessibility of embedded user interfaces.**
7. **Design for device-independence.**
8. **Provide context and orientation information.**
9. **Provide clear navigation mechanisms.**
10. **Ensure that documents are clear and simple.**

Appendix A. - Validation. Automated tools are fast and convenient but cannot identify all accessibility issues. Human review is needed to verify accessibility, and it is best to begin using verification methods at the earliest stages of development, when accessibility issues are easier to correct and avoid. The WAI is developing an online Web Content Accessibility Curriculum, which will be publicly available soon.

Contact Karl Hebenstreit or Quentis Scott	Back to Top

Your comments are welcome.